



SEQUENCE LISTING

<110> University of Hawaii

<120> Baculovirus Produced Plasmodium Falciparum Vaccine

<130> A-67984

<140> US 09/500,376

<141> 2000-02-08

B' <150> US 08/195,705

<151> 1994-02-14

<160> 16

<170> PatentIn version 3.1

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<213> Plasmodium falciparum

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Asp Ile Leu Asn Ser Arg Leu Lys Lys Arg Lys Tyr Phe Leu Asp Val
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Leu Glu Ser Asp Leu Met Gln Phe Lys His Ile Ser Ser Asn Glu Tyr
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Ile Ile Glu Asp Ser Phe Lys Leu Leu Asn Ser Glu Gln Lys Asn Thr
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Leu Leu Lys Ser Tyr Lys Tyr Ile Lys Glu Ser Val Glu Asn Asp Ile
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Lys Phe Ala Gln Glu Gly Ile Ser Tyr Tyr Glu Lys Val Leu Ala Lys
 115 120 125

Tyr Lys Asp Asp Leu Glu Ser Ile Lys Lys Val Ile Lys Glu Glu Lys
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Glu Lys Phe Pro Ser Ser Pro Pro Thr Thr Pro Pro Ser Pro Ala Lys
 145 150 155 160

Thr Asp Glu Gln Lys Lys Glu Ser Lys Phe Leu Pro Phe Leu Thr Asn
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Ile Glu Thr Leu Tyr Asn Asn Leu Val Asn Lys Ile Asp Asp Tyr Leu
 180 185 190

Ile Asn Leu Lys Ala Lys Ile Asn Asp Cys Asn Val Glu Lys Asp Glu
 195 200 205

Ala His Val Lys Ile Thr Lys Leu Ser Asp Leu Lys Ala Ile Asp Asp
 210 215 220

Lys Ile Asp Leu Phe Lys Asn His Asn Asp Phe Glu Ala Ile Lys Lys
 225 230 235 240

Leu Ile Asn Asp Asp Thr Lys Lys Asp Met Leu Gly Lys Leu Leu Ser
 245 250 255

Thr Gly Leu Val Gln Asn Phe Pro Asn Thr Ile Ile Ser Lys Leu Ile
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Glu Gly Lys Phe Gln Asp Met Leu Asn Ile Ser Gln His Gln Cys Val
 275 280 285

Lys Lys Gln Cys Pro Glu Asn Ser Gly Cys Phe Arg His Leu Asp Glu
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Arg Glu Glu Cys Lys Cys Leu Leu Asn Tyr Lys Gln Glu Gly Asp Lys
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Cys Val Glu Asn Pro Asn Pro Thr Cys Asn Glu Asn Asn Gly Gly Cys
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Asp Ala Asp Ala Lys Cys Thr Glu Glu Asp Ser Gly Ser Asn Gly Lys
 340 345 350

Lys Ile Thr Cys Glu Cys Thr Lys Pro Asp Ser Tyr Pro Leu Phe Asp
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 115 120 125

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Ala His Val Lys Ile Thr Lys Leu Ser Asp Leu Lys Ala Ile Asp Asp
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Lys Ile Asp Leu Phe Lys Asn Thr Asn Asp Phe Glu Ala Ile Lys Lys
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Thr Gly Leu Val Gln Ile Phe Pro Asn Thr Ile Ile Ser Lys Leu Ile
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Glu Gly Lys Phe Gln Asp Met Leu Asn Ile Ser Gln His Gln Cys Val
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Lys Lys Gln Cys Pro Glu Asn Ser Gly Cys Phe Arg His Leu Asp Glu
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Arg Glu Glu Cys Lys Cys Leu Leu Asn Tyr Lys Gln Glu Gly Asp Lys
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Cys Glu Glu Asn Pro Asn Pro Thr Cys Asn Glu Asn Asn Gly Gly Cys
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Asp Ala Asp Ala Thr Cys Thr Glu Glu Asp Ser Gly Ser Ser Arg Lys
 340 345 350

Lys Ile Thr Cys Glu Cys Thr Lys Pro Asp Ser Tyr Pro Leu Phe Asp
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Lys Asp Ile Leu Asn Ser Pro Phe Asn Lys Arg Glu Asn Phe Lys Asn
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Val Leu Glu Ser Asp Leu Ile Pro Tyr Lys Asp Leu Thr Ser Ser Asn
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Tyr Val Val Lys Asp Pro Tyr Lys Phe Leu Asn Lys Glu Lys Arg Asp
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Lys Phe Leu Ser Ser Tyr Asn Tyr Ile Lys Asp Ser Ile Asp Thr Asp
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Gln Gly Glu Asn Glu Lys Tyr Leu Pro Phe Leu Asn Asn Ile Glu Thr
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Lys Lys Asn Asn Asn Phe Val Gly Ile Ala Asp Leu Ser Thr Asp Tyr
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Asn His Asn Asn Leu Leu Thr Lys Phe Leu Ser Thr Gly Met Val Phe
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Glu Asn Leu Leu Lys Ser Ile Leu Ser Asn Leu Leu Asp Trp Lys Leu
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Lys Asp Ile Leu Asn Ser Arg Phe Asn Lys Arg Glu Asn Phe Lys Asn
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Val Leu Glu Ser Asp Leu Ile Pro Tyr Lys Asp Leu Thr Ser Ser Asn
65 70 75 80

Tyr Val Val Lys Asp Pro Tyr Lys Phe Leu Asn Lys Glu Lys Arg Asp
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Lys Phe Leu Ser Ser Tyr Asn Tyr Ile Lys Asp Ser Ile Asp Thr Asp
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Ile Asn Phe Ala Asn Asp Val Leu Gly Tyr Tyr Lys Ile Leu Ser Glu
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Lys Tyr Lys Ser Asp Leu Asp Ser Ile Lys Lys Tyr Ile Asn Asp Lys
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Gln Gly Glu Asn Glu Lys Tyr Leu Pro Phe Leu Asn Asn Ile Glu Thr
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Glu Ala Lys Val Leu Asn Tyr Thr Tyr Glu Lys Ser Asn Val Glu Val
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Lys Ile Lys Glu Leu Asn Tyr Leu Lys Thr Ile Gln Asp Lys Leu Ala
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Asp Phe Lys Lys Asn Asn Asn Phe Val Gly Ile Ala Asp Leu Ser Thr
210 215 220

Asp Tyr Asn His Asn Asn Leu Leu Thr Lys Phe Leu Ser Thr Gly Met
225 230 235 240

Val Phe Glu Asn Leu Leu Lys Ser Val Leu Ser Asn Leu Leu Asp Trp
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Lys Leu Ala Arg Tyr Val Lys His Phe Thr Thr Pro Met Arg Lys Lys
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Thr Met Ile Gln Gln Ser Ser Gly Cys Phe Arg His Leu Asp Glu Arg
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Glu Glu Cys Lys Cys Leu Leu Asn Tyr Lys Gln Glu Gly Asp Lys Cys
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Val Glu Asn Pro Asn Pro Thr Cys Asn Glu Asn Asn Gly Gly Cys Asp
 305 310 315 320

Ala Asp Ala Lys Cys Thr Glu Glu Asp Ser Gly Ser Asn Gly Lys Lys
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Ile Thr Cys Glu Cys Thr Lys Pro Asp Cys Tyr Pro Leu Phe Asp Gly
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Val Thr Ala Thr Leu Cys Thr Ala Gly Ala Ala Val Thr Pro Ser Val
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Ile Asp Asn Ile Leu Ser Lys Ile Glu Asn Glu Tyr Glu Val Leu Tyr
  30              35              40              45

tta aaa cct tta gca ggt gtt tat aga agt tta aaa aaa caa tta gaa 194
Leu Lys Pro Leu Ala Gly Val Tyr Arg Ser Leu Lys Lys Gln Leu Glu
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gga tgt ttc aga cat tta gat gaa aga gaa gaa tgt aaa tgt tta tta	962
Gly Cys Phe Arg His Leu Asp Glu Arg Glu Glu Cys Lys Cys Leu Leu	
305 310 315	
aat tac aaa caa gaa ggt gat aaa tgt gtt gaa aat cca aat cct act	1010
Asn Tyr Lys Gln Glu Gly Asp Lys Cys Val Glu Asn Pro Asn Pro Thr	
320 325 330	
tgt aac gaa aat aat ggt gga tgt gat gca gat gcc aaa tgt acc gaa	1058
Cys Asn Glu Asn Asn Gly Gly Cys Asp Ala Asp Ala Lys Cys Thr Glu	
335 340 345	
gaa gat tca ggt agc aac gga aag aaa atc aca tgt gaa tgt act aaa	1106
Glu Asp Ser Gly Ser Asn Gly Lys Lys Ile Thr Cys Glu Cys Thr Lys	
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cct gat tct tat cca ctt ttc gat ggt att ttc tgc agt cat cat cat	1154
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<213> Plasmodium falciparum

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35 40 45

Leu Ala Gly Val Tyr Arg Ser Leu Lys Lys Gln Leu Glu Asn Asn Val
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Met Thr Phe Asn Val Asn Val Lys Asp Ile Leu Asn Ser Arg Phe Asn
 65 70 75 80

Lys Arg Glu Asn Phe Lys Asn Val Leu Glu Ser Asp Leu Ile Pro Tyr
 85 90 95

Lys Asp Leu Thr Ser Ser Asn Tyr Val Val Lys Asp Pro Tyr Lys Phe.
 100 105 110

Leu Asn Lys Glu Lys Arg Asp Lys Phe Leu Ser Ser Tyr Asn Tyr Ile
 115 120 125

Lys Asp Ser Ile Asp Thr Asp Ile Asn Phe Ala Asn Asp Val Leu Gly
 130 135 140

Tyr Tyr Lys Ile Leu Ser Glu Lys Tyr Lys Ser Asp Leu Asp Ser Ile
 145 150 155 160

Lys Lys Tyr Ile Asn Asp Lys Gln Gly Glu Asn Glu Lys Tyr Leu Pro
 165 170 175

Phe Leu Asn Asn Ile Glu Thr Leu Tyr Lys Thr Val Asn His Lys Ile
 180 185 190

Asp Leu Phe Val Ile His Leu Glu Ala Lys Val Leu Asn Tyr Thr Tyr
 195 200 205

Glu Lys Ser Asn Val Glu Val Lys Ile Lys Glu Leu Asn Tyr Leu Lys
 210 215 220

Thr Ile Gln Asp Lys Leu Ala Asp Phe Lys Lys Asn Asn Asn Phe Val
 225 230 235 240

Gly Ile Ala Asp Leu Ser Thr Asp Tyr Asn His Asn Asn Leu Leu Thr
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Lys Phe Leu Ser Thr Gly Met Val Phe Glu Asn Leu Ala Lys Thr Val
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Leu Ser Asn Leu Leu Asp Gly Asn Leu Gln Gly Met Leu Asn Ile Ser
 275 280 285

Gln His Gln Cys Val Lys Lys Gln Cys Pro Gln Asn Ser Gly Cys Phe
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Arg His Leu Asp Glu Arg Glu Glu Cys Lys Cys Leu Leu Asn Tyr Lys
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Gln Glu Gly Asp Lys Cys Val Glu Asn Pro Asn Pro Thr Cys Asn Glu
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Asn Asn Gly Gly Cys Asp Ala Asp Ala Lys Cys Thr Glu Glu Asp Ser
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			20					25					30		

Gly	Phe	Glu	Asn	Glu	Tyr	Asp	Val	Ile	Tyr	Leu	Lys	Pro	Leu	Ala	Gly
		35					40					45			

Val Tyr Arg Ser Leu Lys Lys Gln Ile Glu Lys Asn Ile Phe Thr Phe
 50 55 60

Asn Leu Asn Leu Asn Asp Ile Leu Asn Ser Arg Leu Lys Lys Arg Lys
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Tyr Phe Leu Asp Val Leu Glu Ser Asp Leu Met Gln Phe Lys His Ile
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Ser Ser Asn Glu Tyr Ile Ile Glu Asp Ser Phe Lys Leu Leu Asn Ser
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Glu Gln Lys Asn Thr Leu Leu Lys Ser Tyr Lys Tyr Ile Lys Glu Ser
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Val Glu Asn Asp Ile Lys Phe Ala Gln Glu Gly Ile Ser Tyr Tyr Glu
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Lys Val Leu Ala Lys Tyr Lys Asp Asp Leu Glu Ser Ile Lys Lys Val
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Ile Lys Glu Glu Lys Glu Lys Phe Pro Ser Ser Pro Pro Thr Thr Pro
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Pro Ser Pro Ala Lys Thr Asp Glu Gln Lys Lys Glu Ser Lys Phe Leu
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Pro Phe Leu Thr Asn Ile Glu Thr Leu Tyr Asn Asn Leu Val Asn Lys
 195 200 205

Ile Asp Asp Tyr Leu Ile Asn Leu Lys Ala Lys Ile Asn Asp Cys Asn
 210 215 220

Val Glu Lys Asp Glu Ala His Val Lys Ile Thr Lys Leu Ser Asp Leu
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Lys Ala Ile Asp Asp Lys Ile Asp Leu Phe Lys Asn His Asn Asp Phe
 245 250 255

Asp Ala Ile Lys Lys Leu Ile Asn Asp Asp Thr Lys Lys Asp Met Leu
 260 265 270

Gly Lys Leu Leu Ser Thr Gly Leu Val Gln Asn Phe Pro Asn Thr Ile
275 280 285

Ile Ser Lys Leu Ile Glu Gly Lys Phe Gln Asp Met Leu Asn Ile Ser
290 295 300

Gln His Gln Cys Val Lys Lys Gln Cys Pro Glu Asn Ser Gly Cys Phe
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Arg His Leu Asp Glu Arg Glu Glu Cys Lys Cys Leu Leu Asn Tyr Lys
325 330 335

Gln Glu Gly Asp Lys Cys Val Glu Asn Pro Asn Pro Thr Cys Asn Glu
340 345 350

Asn Asn Gly Gly Cys Asp Ala Asp Ala Lys Cys Thr Glu Glu Asp Ser
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Gly Ser Asn Gly Lys Lys Ile Thr Cys Glu Cys Thr Lys Pro Asp Ser
370 375 380

Tyr Pro Leu Phe Asp Gly Ile Phe Cys Ser Pro Pro His His His His
385 390 395 400

His His